

REMARKS

The Office examined claims 1-7, 10-16, and 20-31 and rejected claims 1-3, 7, 10-13 and 20. This paper corrects obvious errors in the claims, and eliminates redundancies complained of by the examiner, and then requests reconsideration of the rejected claims. The application still includes claims 1-7, 10-16, and 20-31.

Rejections under 35 USC §102

At paragraph five of the Office action, claims 1-3, 7, 10-13, 20 and 31 are rejected under 35 USC §102 as being anticipated by U.S. Pat. No. 6,643,322 to Varma et al.

Claim 1 recites a second communication device examining a signal received from a first communication device and providing a first indication of the quality of the signal as received by the second communication device, and also providing a second indication of the quality of the signal as received by the second communication device, and then deciding to perform link adaptation based on the first and second indication of the quality of the signal. Claim 11 is to a communication device having means for performing the steps of claim 1.

Claims 2 and 3 are illustrative. Claim 2 is to embodiments in which the first indication of the quality of the signal as received by the second communication device is e.g. an SIR estimate, or an FER or BLER or corresponding statistic collected over a predetermined time period. Claim 3 is to embodiments in which the second indication of the quality of the signal as received by the second communication device is e.g. an SIR target value or a changed SIR target value (i.e. a change in an SIR target value, as in the application at e.g. page 8, line 29). Now it must be appreciated that the above examples of a second indication--an SIR target value or a changed SIR target value--

are used also in power control, but the actual SIR target value in use (or a changed SIR target value) is an indication of the quality of the signal received by the second communication device. As an example (and following the application beginning at page 7, line 1) the second communication device may be a base station, and the first communication device may be a mobile station, and a SIR target value is used by the base station in controlling the power of the mobile, but per the invention, may also be used to determine whether to perform link adaptation of the link from the mobile to the base, since it is indicative of the quality of the signal from the mobile as received by the base station. Thus, the value in use for the SIR target in such embodiments acts in two roles: as a setting for power control (i.e. per the prior art), and (per the invention as in claims 3 and 13, and so also by claims 1 and 11) as a second indication of the quality of the signal as received by the second communication device.

Now it is important to understand that the SIR target value (or changed SIR target value) is determined based on an SIR estimate (a measurement made possibly by the base station) or possibly based on NACK/ACK signaling by the base station (because such ACK/NACK signaling is indicative of the quality of the signal received by the base station, as explained at page 11, 11. 14-16). So in using the second indication of the quality of the signal as received by the second communication device in deciding to perform link adaptation (for the uplink in this case, i.e. from the mobile to the base station), the base station is basing its decision (whether to adapt the link from the mobile) on both the first and second indications of the quality of the signal received from the base, as in claims 1 and 11. (Thus, it is implied by claims 1 and 11 that if the decision is based on the second indication having a certain value or pattern of values, as in e.g. claim 4-6 and 14-16, then the second indication must be

based on or derived from the first indication in order for the limitation of claims 1 and 11 to hold, i.e. that the decision be based on both the first and second indications of quality.)

Varma nowhere teaches or suggests a communication device using both a first and second indication of the quality of a signal received from another communication device in deciding whether to perform link adaptation (of the link from the other communication device). The Office action asserts that "besides deciding whether to perform link adaptation based on ACK/NACK, Varma also decide[s] whether to perform link adaptation based on other factors such as signal to interference + noise signal," citing Fig. 3, col. 1, ll. 52-67 and col. 4, ll. 17-56." At the col. 4 location, Varma discloses switching from a first set of wireless link parameters to a second set if, for a given SINR, the throughput efficiency is greater for the second set. (See col. 4, ll. 40-49.) At col. 1, ll. 52-67, Varma discloses changing from a first set of wireless link parameters to another set based on "a measure" of errors (col. 1, line 54, 56, and 61), and more specifically, comparing "the measure" to a threshold. At col. 2, ll. 4-6, Varma states that "Preferably, the measure of errors is determined by monitoring a number of NACK messages and a number of ACK messages that occur," leading one to wonder if by such monitoring some yet to be disclosed measure of errors is so determined. But Varma then states (next sentence) that "It is determined that the measure of errors corresponds to more errors than the first predetermined threshold when more than a predetermined number of NACK messages occur in succession," and so the measure of errors is in fact the pattern of ACK/NACK messages. Also at col. 2, line 31, Varma states at ll. 31-43 that "An optimal set of parameters tends to be automatically selected for a given error rate by using ... intersections [of curves representing relationships between throughput efficiency and error tolerance for respective wireless link parameters] as

thresholds for changing between sets of parameters." However, Varma never indicates any relationship between using ACK/NACK patterns and using the throughput efficiency vs. error tolerance relationships. It must therefore be understood that Varma is disclosing using either one or another single measure of quality, either SINR (so as to be able to use the throughput efficiency vs. error tolerance relationships) or ACK/NACK patterns (so as to be able to compare with a predetermined number of successive ACKs or successive NACKs used as thresholds for moving to either a less robust wireless link or a more robust wireless link, respectively).

Therefore, it cannot fairly be said that Varma teaches using both a first indication of the quality of a signal received over a link from another communication device and also a second indication of the quality of the signal as the basis for deciding on whether to perform link adaptation (of the link from the other communication device), as in claims 1 and 11. Varma teaches using either ACK/NACK patterns or SINR, but not both.

Claim 31 includes all of the limitations of claim 11, and so is believed allowable for the same reasons as given for claim 11.

Thus, claims 1, 11 and 31 are believed allowable over Varma.

Accordingly, and since all claims rejected under 35 USC §102 depend from either claim 1 or claim 11, applicant respectfully requests that all rejections under 35 USC §102 be reconsidered and withdrawn.

Further in respect to claims 3 and 13, applicant respectfully submits that there is no teaching in Varma of using an SIR target (or a change in same) as the basis for determining whether to perform link adaptation. An SIR target, as explained above, is a value used according to the prior art only for power control. While Varma does teach using SINR, it nowhere teaches or suggests using anything like an SIR target. As the Examiner

knows, SINR is a value that is *measured* by monitoring a received signal, for example by measuring the signal when no actual signal is being transmitted and so only noise plus interference is being received, and then measuring the signal while an actual signal is being transmitted. In contrast, an SIR target is a value that is *set*, not measured, in order to control power used in communicating over a wireless link. Applicant therefore respectfully submits that claims 3 and 13 are allowable not only on the grounds that they depend from claims 1 and 11 respectively, but also on the ground that using an SIR target or changes SIR target for deciding whether to perform link adaptation is nowhere taught or suggested by Varma, and so applicant also respectfully requests that the rejections of these claims be withdrawn on this second ground.

Conclusion

For all the foregoing reasons it is believed that all of the claims of the application are in condition for allowance and their passage to issue is earnestly solicited.

August 5, 2005

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